

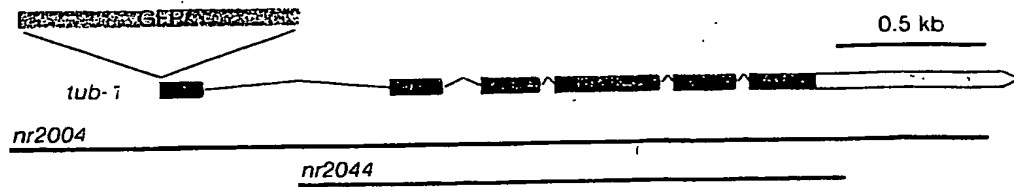
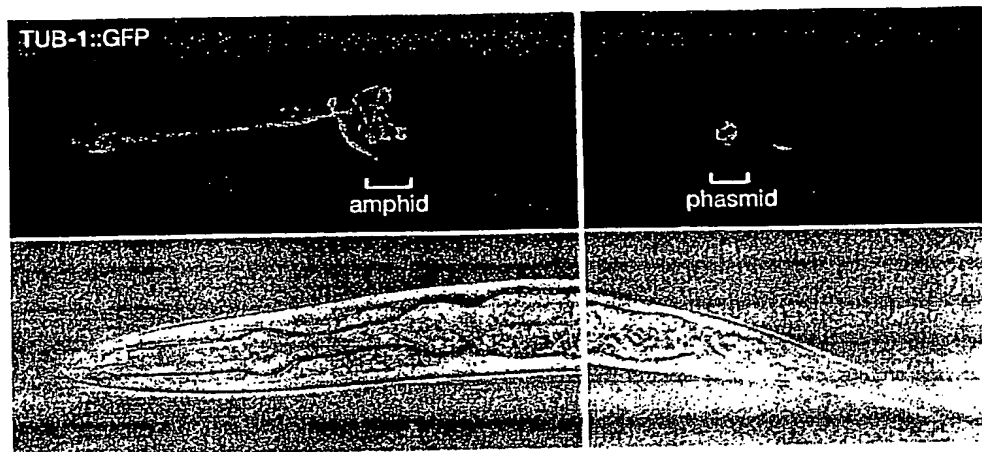
A**B**

Figure 2

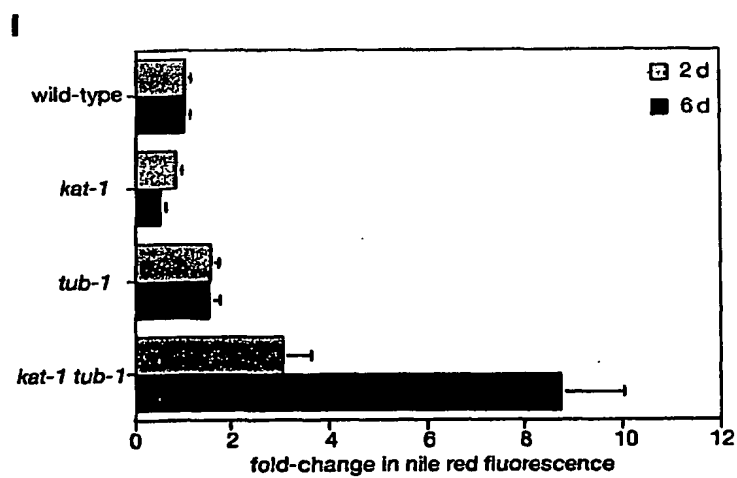
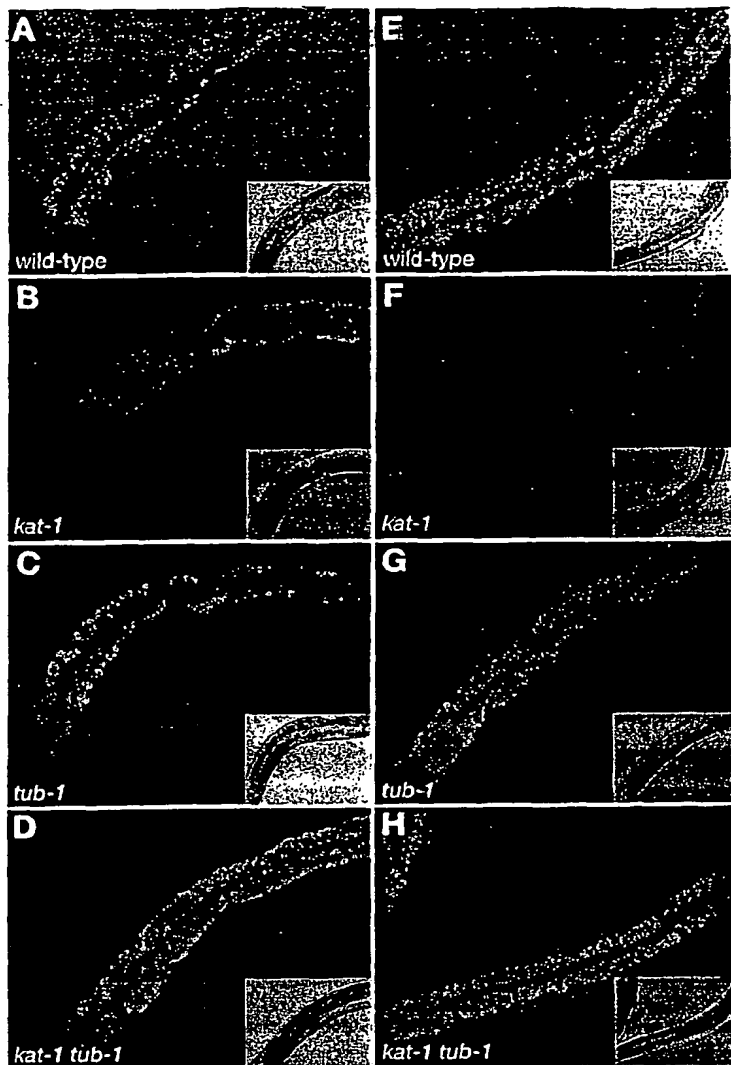


Figure 3A

Peroxisomal Fatty acids β -oxidation

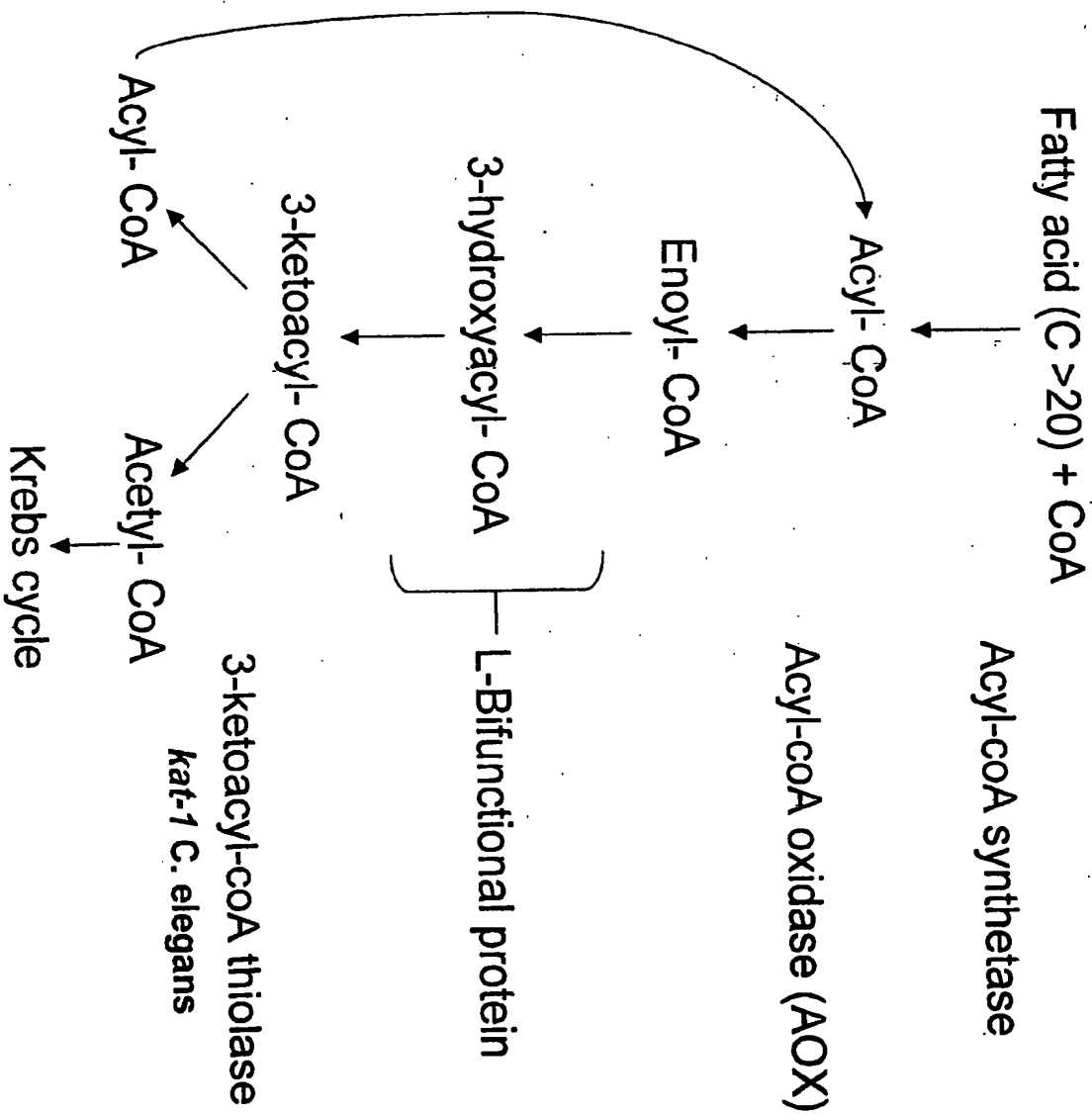
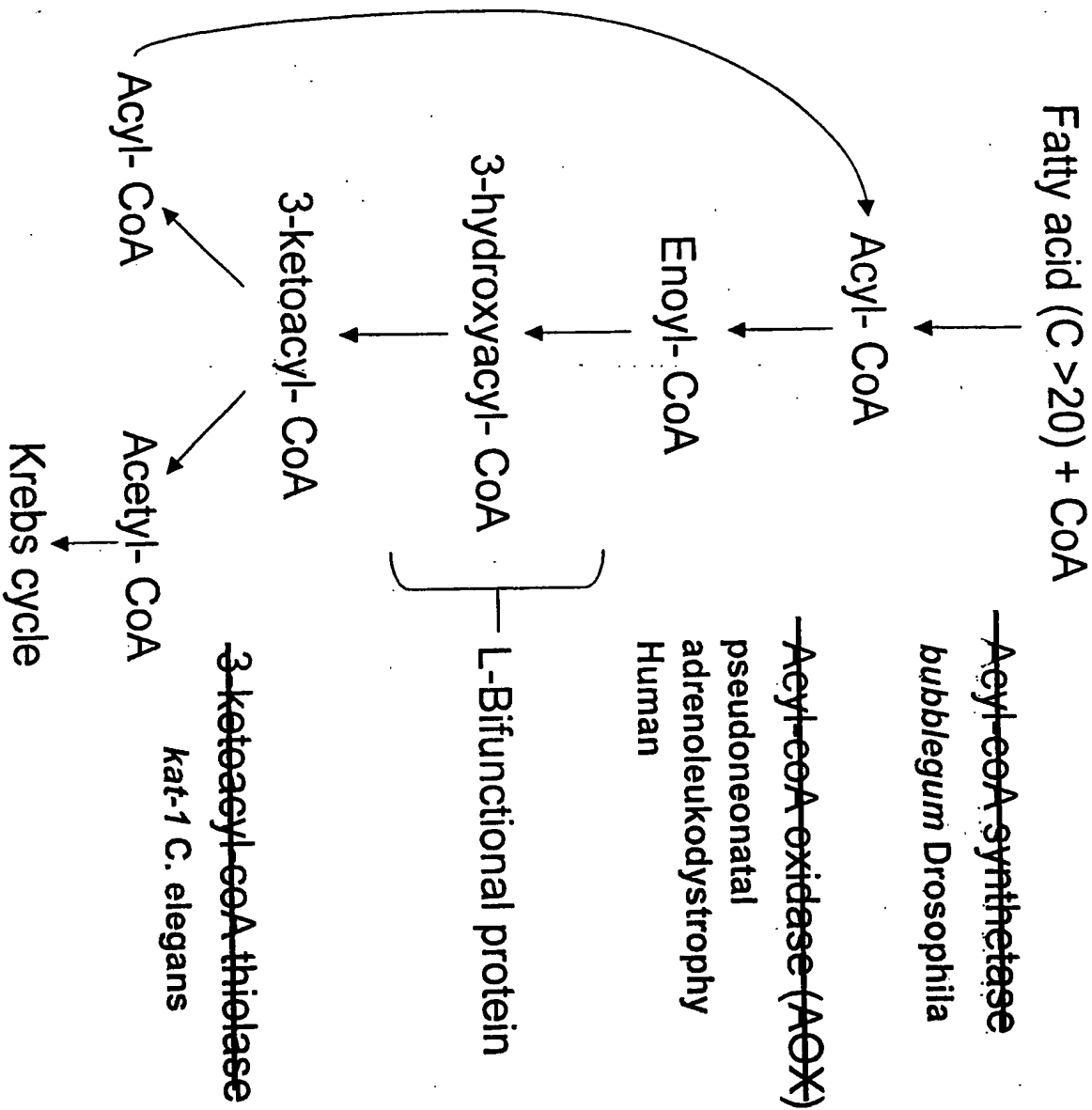


Figure 3B

Peroxisomal Fatty acids β -oxidation



Sequence alignment of 3-ketoacyl-coA thiolase family members

T02G5. 8 *kat-1*
 Saccharomyces
 Yarrowia
 Arabidopsis
 Drosophila
 Rattus
 Mouse
 Human

36: SFRSSLSVVAPEEASVAAKAAER... GAVKSSQDVEELGQVCOAMAG QAPAROLA: 90
 49: GFKGAKEDVNTDYIMFMFMEFGPEPLRADLMLTEVACGMVNVGAG ATEHDAIC: 107
 43: GKGGLFKDSSSEMAASLEGVYK... ESKDPEKLIGDVVCGNVLAAGAG XTEHDAIC: 97
 21: ARRGGEKDLPDMLASVYKAYVER... TSHDSEFGDLYVGVVAPSSQKMECPMA: 76
 37: SFQSOLAPLPAVLGARAHEAAERK... AGUAKTDQEVVIGMVSAGLG QAPAROLA: 91
 61: AGRGGEKDTPEDEMSAVLTAVLQD... VIKPECLGDISTGMVLEPGAG AVHAPILQ: 115
 51: ASRGGKMTTPDEMSAVLTAVLQD... VIKPEQLGDISTGMVLEPGAG AVHAPILQ: 105
 51: AGRGGEKDTTPDEMSAVLTAVLQD... VIKPEQLGDISTGMVLEPGAG AVHAPILQ: 105

K *mg399* (g → a)

T02G5. 8
 Saccharomyces
 Yarrowia
 Arabidopsis
 Drosophila
 Rattus
 Mouse
 Human

91: LGAGHDLGVAAYTVYNYK... GSSGLKKAHILAAQOLOTGHODFAIGGSHSHSOVPFYQRCET: 150
 108: LASGIMYSTPEVAHNRQ... GSSGLTVYNDLANKLYGQIDIGLALGVESH INNYKNV: 162
 98: LVAGLEPEVPEVAHNRQ... GSSGLQVNDVANKMAAGQIDIGTGGVESH SMQYG P: 151
 77: YFAGEFDSVEYRNTVNRQ... GSSGLQVADVLAASRASTYDIGGASVESH STDHI: 129
 92: IFAGHPTNACCIVYNYK... GSSGHEVHLGQDSHNLSTADVPVAGGVESH SNVPYLLKRGAT: 151
 116: FLSCHEPEVPEVAHNRQ... GSSGLQVANTAGGVNRGSTYDIGHACGVESH SLNMR: 168
 106: FLSCHEPEVPEVAHNRQ... GSSGLQVANTAGGVNRGSTYDIGHACGVESH SLSGH: 158
 106: FLSDHPEVPEVAHNRQ... GSSGLQVASTAGGVNRGSTYDIGHACGVESH SLADR: 158

P *mg368* (g → c)

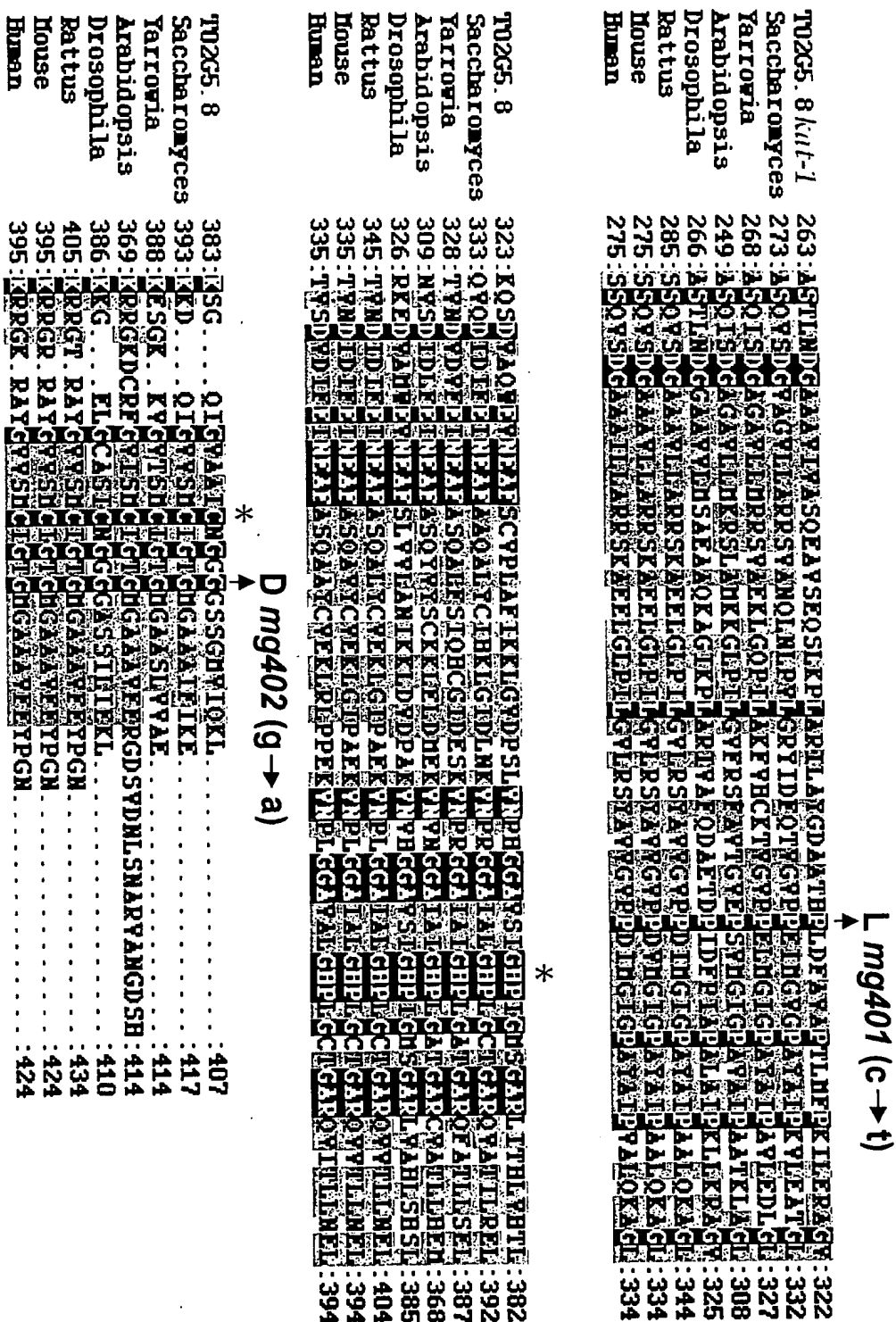
T02G5. 8
 Saccharomyces
 Yarrowia
 Arabidopsis
 Drosophila
 Rattus
 Mouse
 Human

151: PYGGFQYIDGIXKDGLTADYDKVHGMCGEKTSEKNGHTRPDODEVAILNSYKESAKVFN: 210
 163: NPLGMISSE FENOKRFAKCKLTPGTHNENVAANKISREDODEVAILNSYKESAKVFN: 221
 152: NSVTPFSN KFOHNEFAKCKLTPGTHNENVAANKISREDODEVAILNSYKESAKVFN: 209
 130: PGCGFHBGNPRAODPEKARDGHPNGHNSNVAERHGVYREFODDAAVESHKRAAAVIA: 189
 152: PYCGFNLHDCIFEDGLVDYANKFBGNCLENTAKLETPRQODDEFAVESHKRAAAVIA: 211
 169: GNPGNIS... PILESDKARDCLTPNGHNSNVAERHGVYREFODDAAVESHKRAAAVIA: 226
 159: GNPGNIS... PILSEKARDCLTPNGHNSNVAERHGVYREFODDAAVESHKRAAAVIA: 216
 159: GNPGNIS... PILSEKARDCLTPNGHNSNVAERHGVYREFODDAAVESHKRAAAVIA: 216

K *mg400* (g → a)

Figure 5

Sequence alignment of 3-ketoacyl-coA thiolase family members



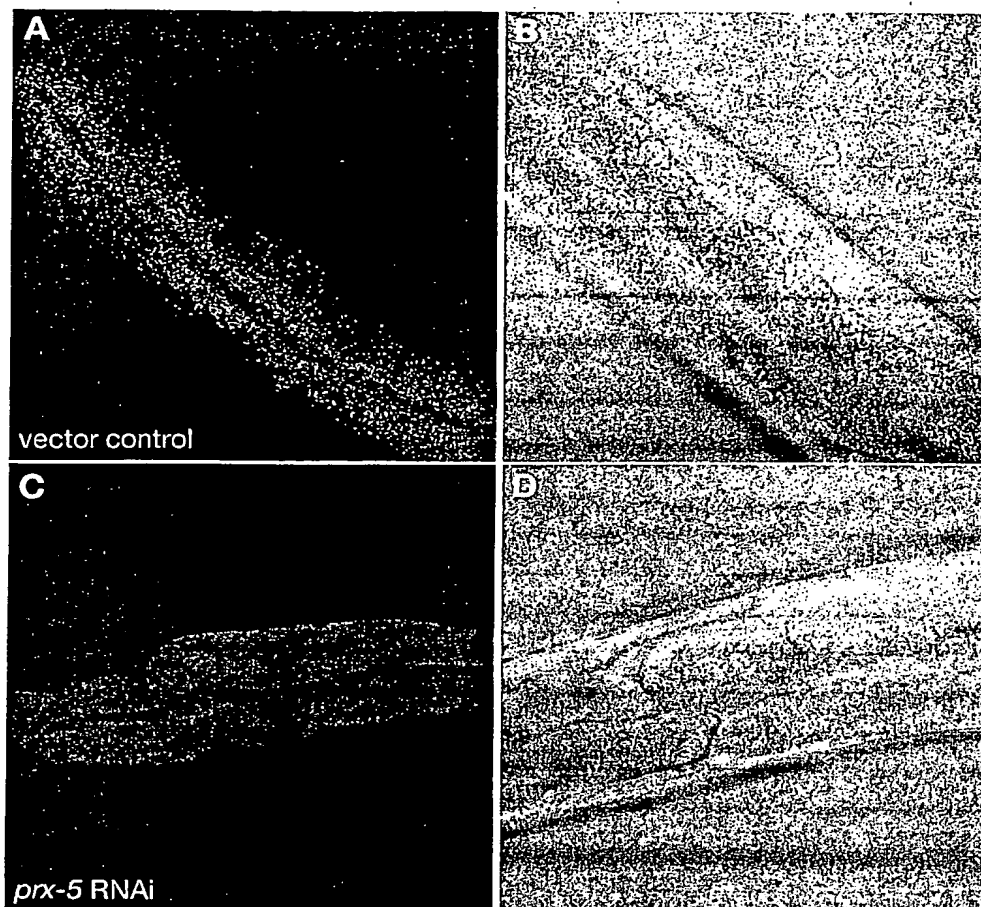


Figure 7A-7E

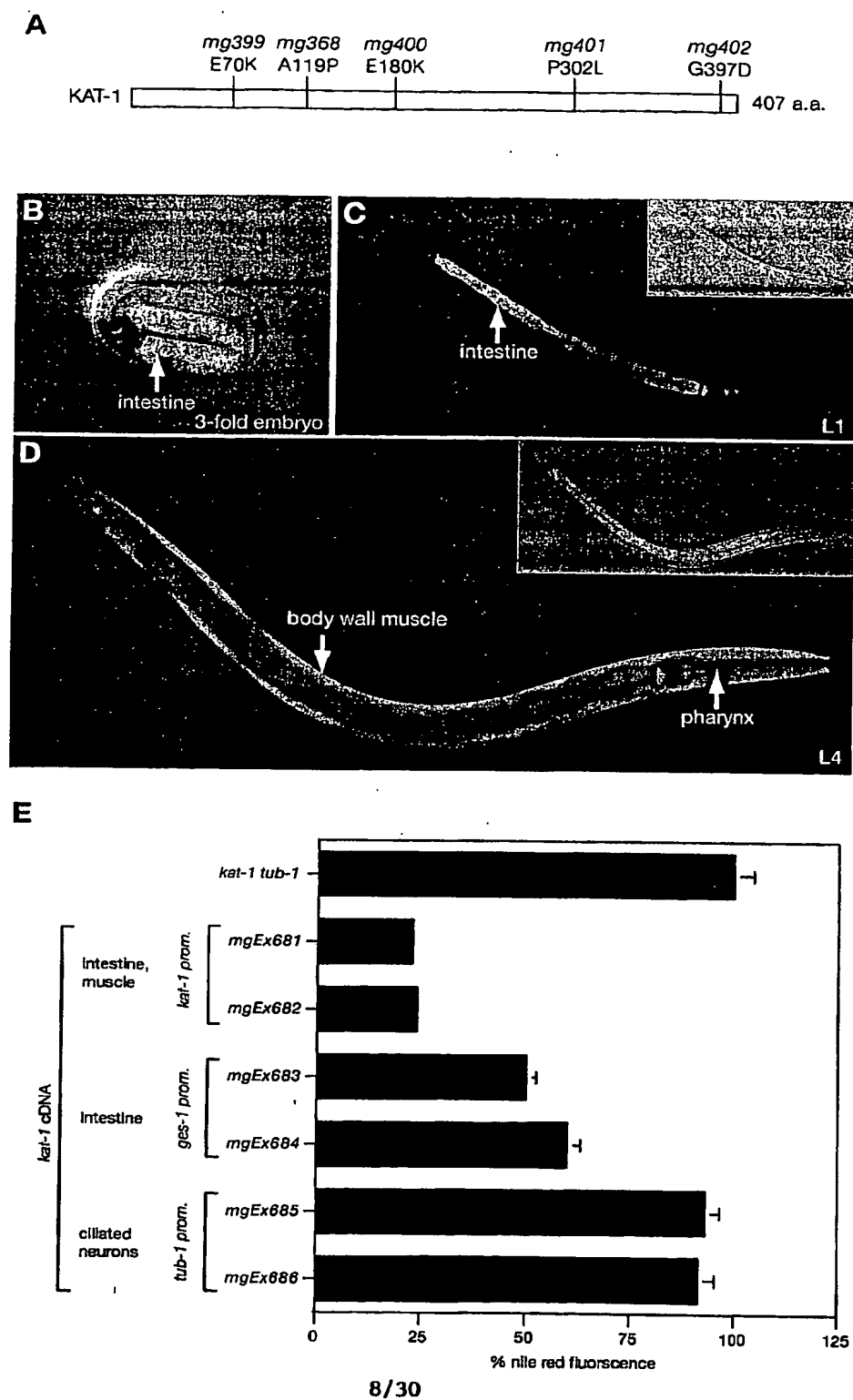


Figure 7F

C. elegans 1MLSSSGHAIRRGITTSAAALSNKHAFIVGAARTPTG.SFRSSLSSV
S. cerevisiae 1 MSORLQSIKDHL...VESAMGKGESKRKNSLLEKRPEDVVIVAANRSATGKGPKGAFKDV
H. sapiens 1 .MQRLQVVLGHLRGPADS[GWMPQAAPCLSGAPQASAADV[VHGR[TA[CRAGRGGFKDT

↓ K mg399

C. elegans 45 TAPETASVAIKAAER..GAVKPSS..IQEVFLGQVCOANAGQAPARQAAALGAGLDLSVA
S. cerevisiae 58 NTDYLLYNFLNEFIGRFPEPLRADLNLIEEVACGNVLNVGAGATEHRAACLASGIPYSTP
H. sapiens 60 TPDELLSAVMTAVLK..DVNL[RPEQ..LGDICVGNVLQPGAGAIMARIAQFLSDIPETVP

↓ P mg368

C. elegans 101 VTTVNKVCSSGKKAIIILAAQQTQTGHQDFAIGGGMESMSQVPPFYVQGEIPIYGGFQVIDG
S. cerevisiae 118 FVALNRQCSSGLTAVNDIANKIKVGQIDIGLALGVESMTNN..YKNVNPLGM....ISSE
H. sapiens 116 LSTVNROCSSGLQAVASIAAGGIRNGSYDIGMACGVESMS....LADRGNPGN....ITSR

↓ K mg400

C. elegans 161 IVKDGLTDAYDKVHMCNCGEKTSEMGITRKDODEYAINSYKKSAAWENGNIQPEVVPV
S. cerevisiae 172 ELQKNREAKKCLIPMGITNENVAANFKISRKODEFAANSYOKAYKAKNEGLFEDEILPI
H. sapiens 168 LMEKEK.ARDCLIPMGITSENVAERFGISREKODTFALASOOKAARAQSKGCFQAEIVPV

C. elegans 221 NVKSK....K.GVTIVDKDEEFTKVNFDKFTSLRTVFQKD.GTITAANASTLNDGAAAV
S. cerevisiae 232 KLPDG.....SICQS.DEGPRPNVTAESLSSIRPAFTKDRGTTTGNASQVSDGVAGV
H. sapiens 227 TTTVHDDKGTXRSTVTDQEGIRPSTTMEGLAKLKPAFKKD.GSTTAGNSSQVSDGAAAI

↓ L mg401

C. elegans 274 IVASQEAHVSEQS[KPLARILAYGDAATHPLDFAVAPTLMFPKILERAGVKQSDVAQWENV
S. cerevisiae 284 LLARRSVANQLNLEVLGRYIDFQTVGVPPPEIMGVGPAYAIKPVLEATGLQVQDIDIFEIN
H. sapiens 286 LLARRSKAEELG[PILGLVLRSYAVVGVPEDIMGIGPAYAIPVALQKAGLTVSDVDIFEIN

*

C. elegans 334 EAFSCVPLAFIKKLGVDPSLVNPHGGAVSIGHPIGMSGARLITHLVHTLK...SGQIGVA
S. cerevisiae 344 EAFAAQALYCIHKLGLIDLNKVNPRGGAIALGHPLGCTGARQVATILRELK...KDQIGVV
H. sapiens 346 EAFASQAAYCVERLRLPPEKVNPLGGAVALGHPLGCTGARQVITLLNELKRRGKRAYGVV

↓ D mg402

C. elegans 391 AICNCGGSGSMVVIQKL..
S. cerevisiae 401 SMCICTGMGAAAFIKE..
H. sapiens 406 SMCICTGMGAAAYFPEYPGN

Nile red staining of 2 day old adult

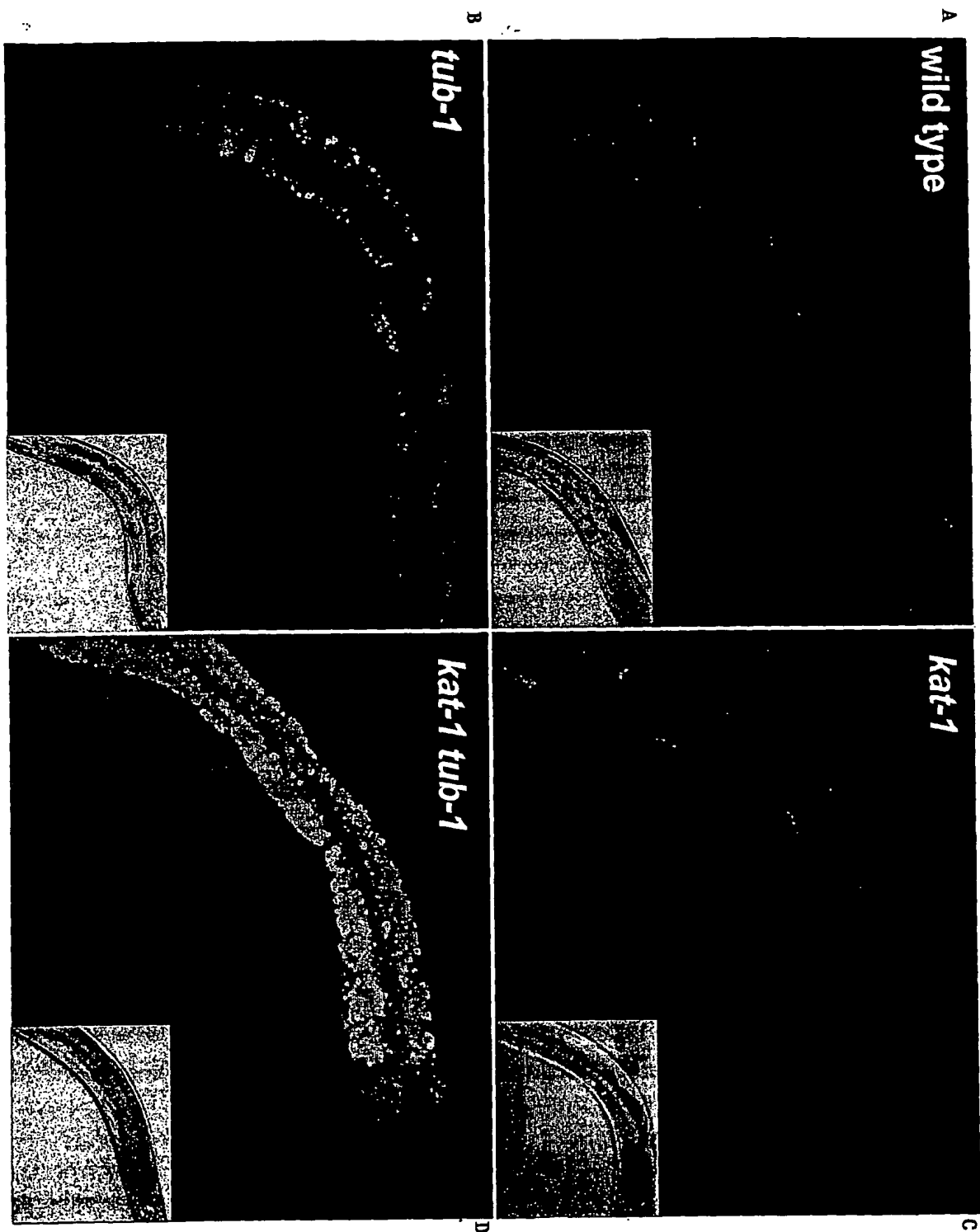
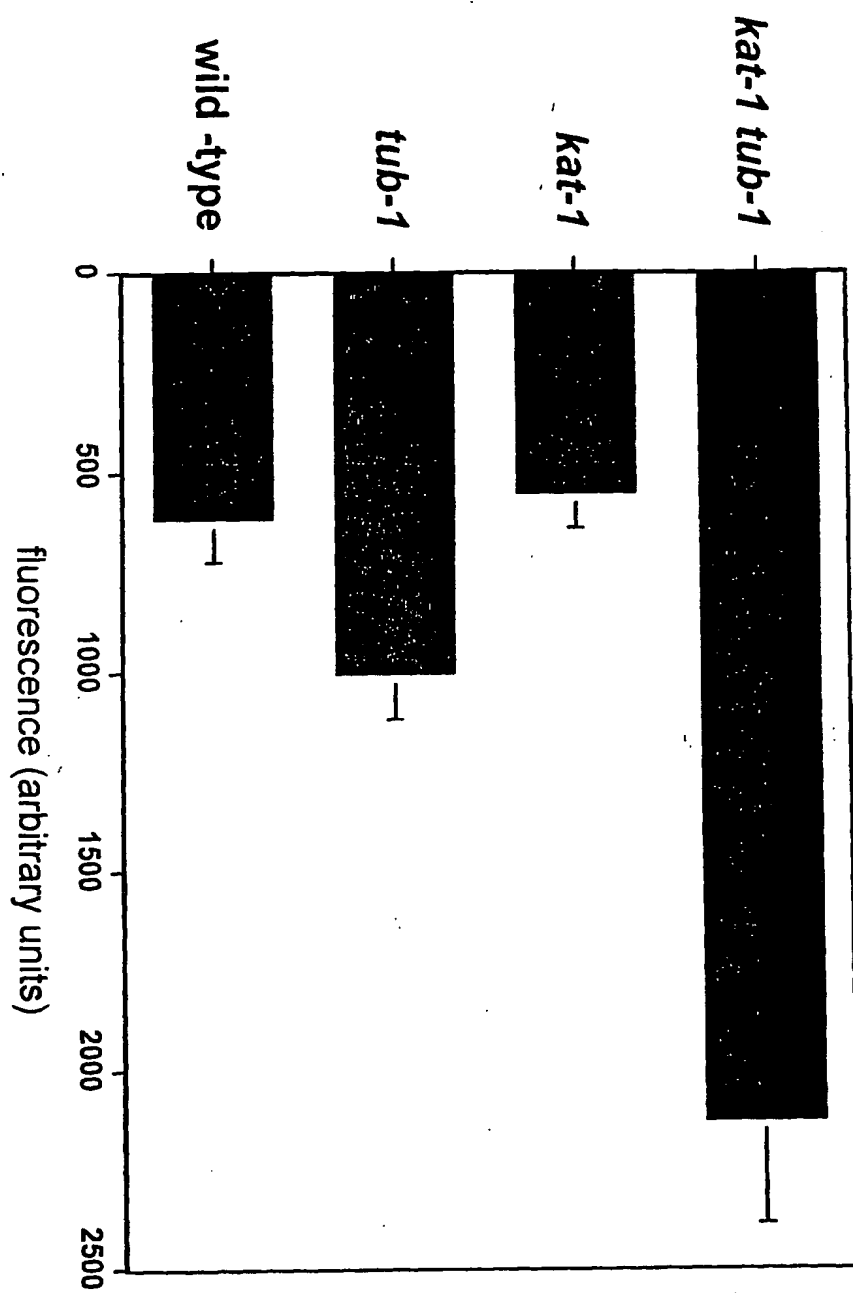


Figure 9

Nile red staining of 2 day old adult



Nile red staining of 6 day old adult

Figure 10A-10D

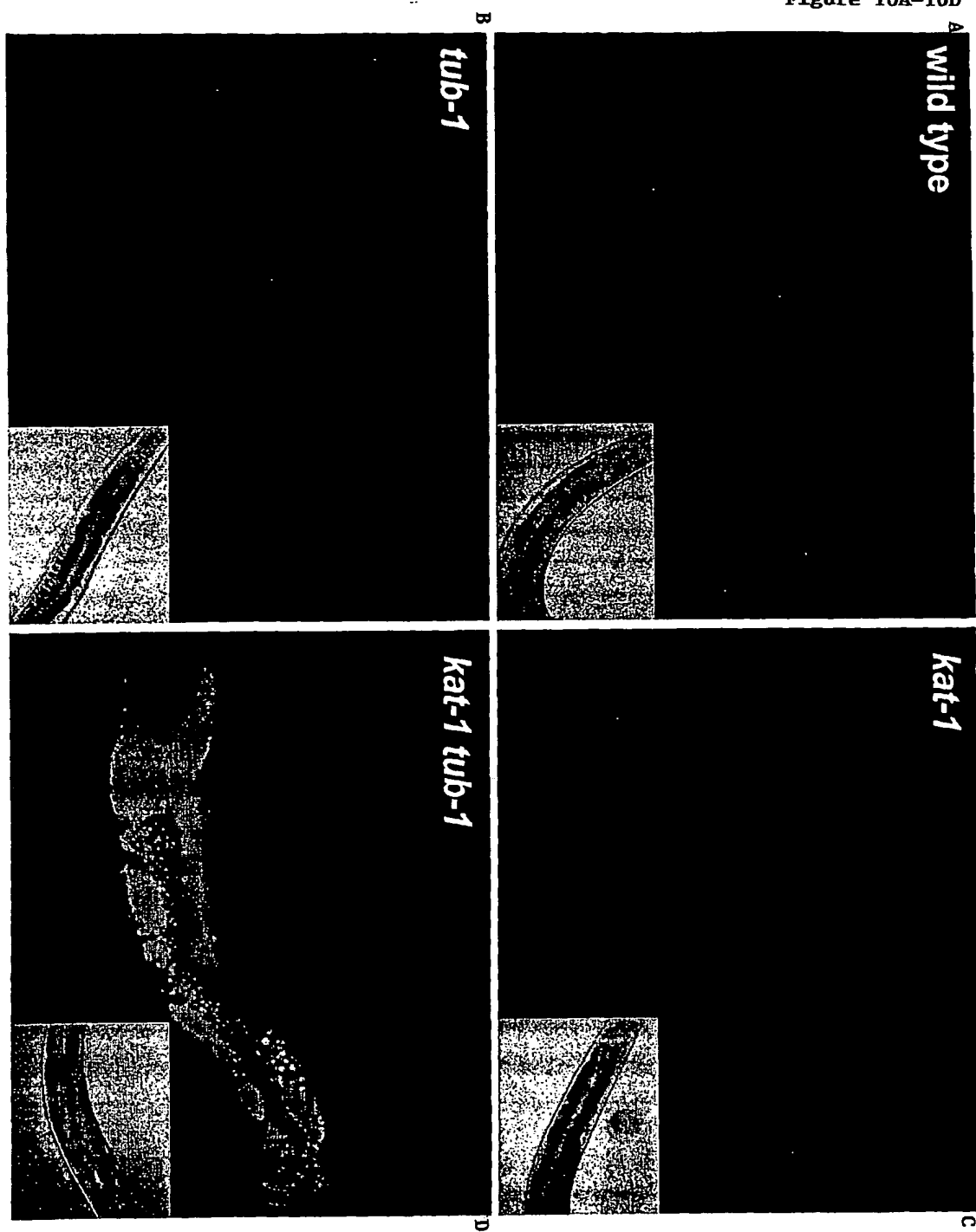


Figure 11

Nile red staining of 6 day old adult

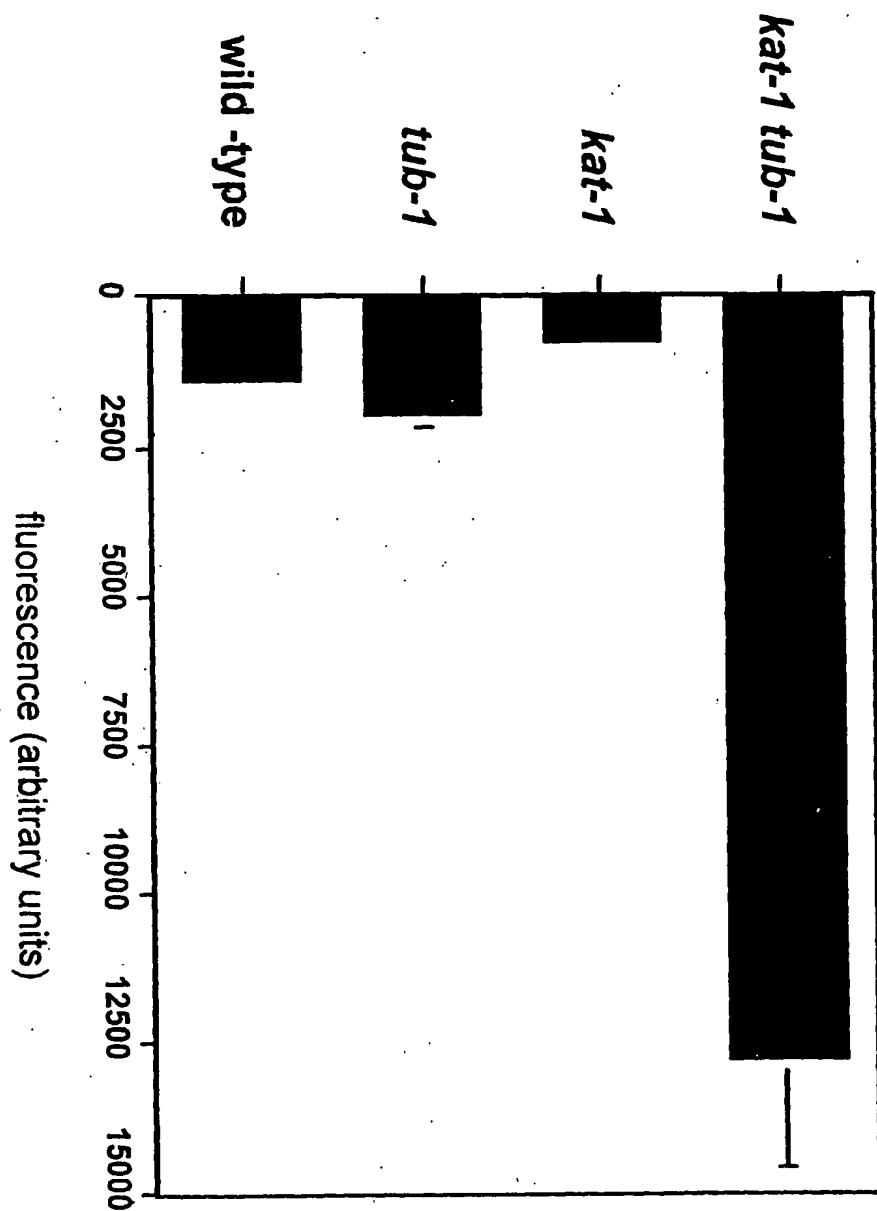


Figure 12

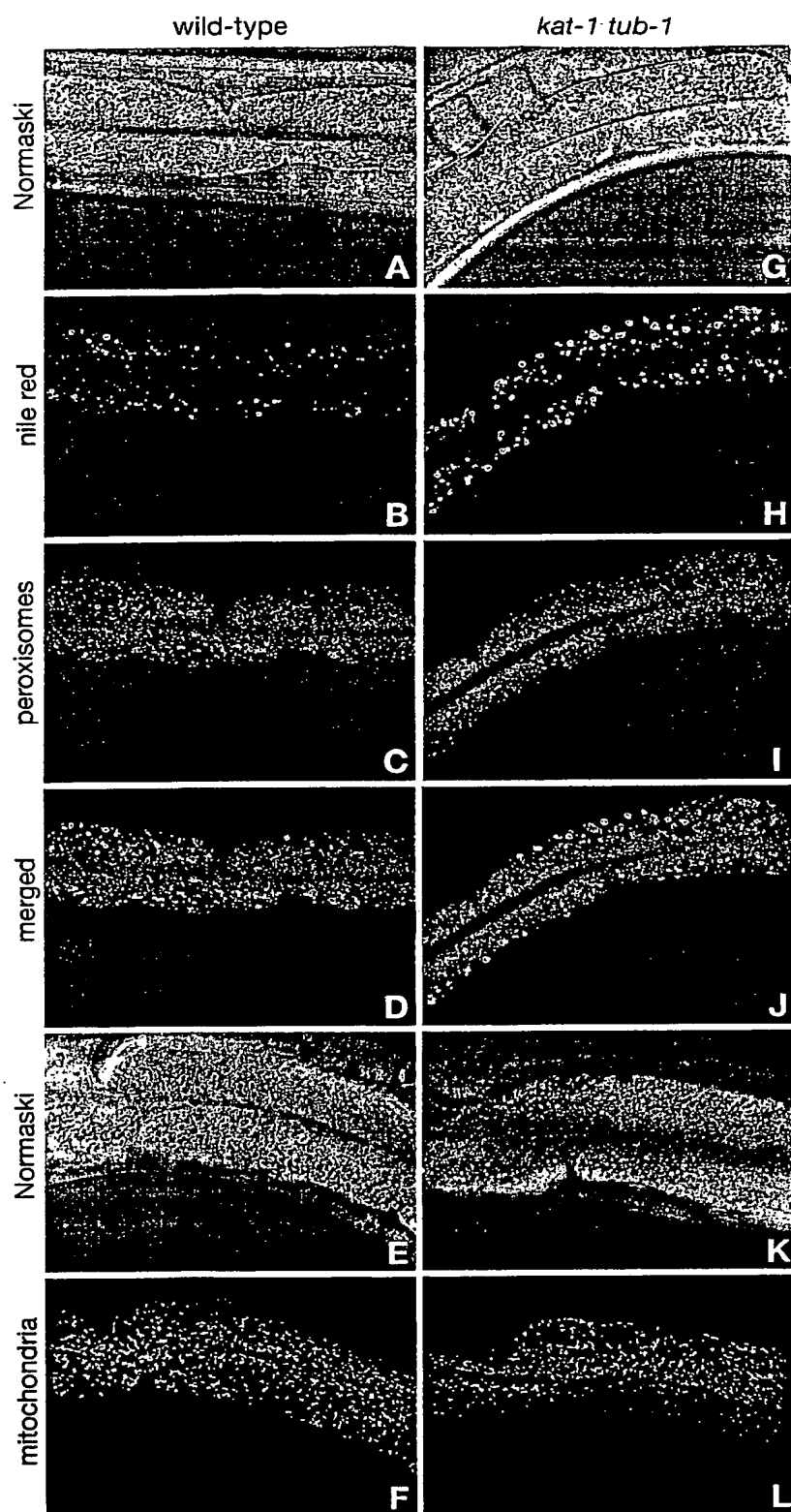
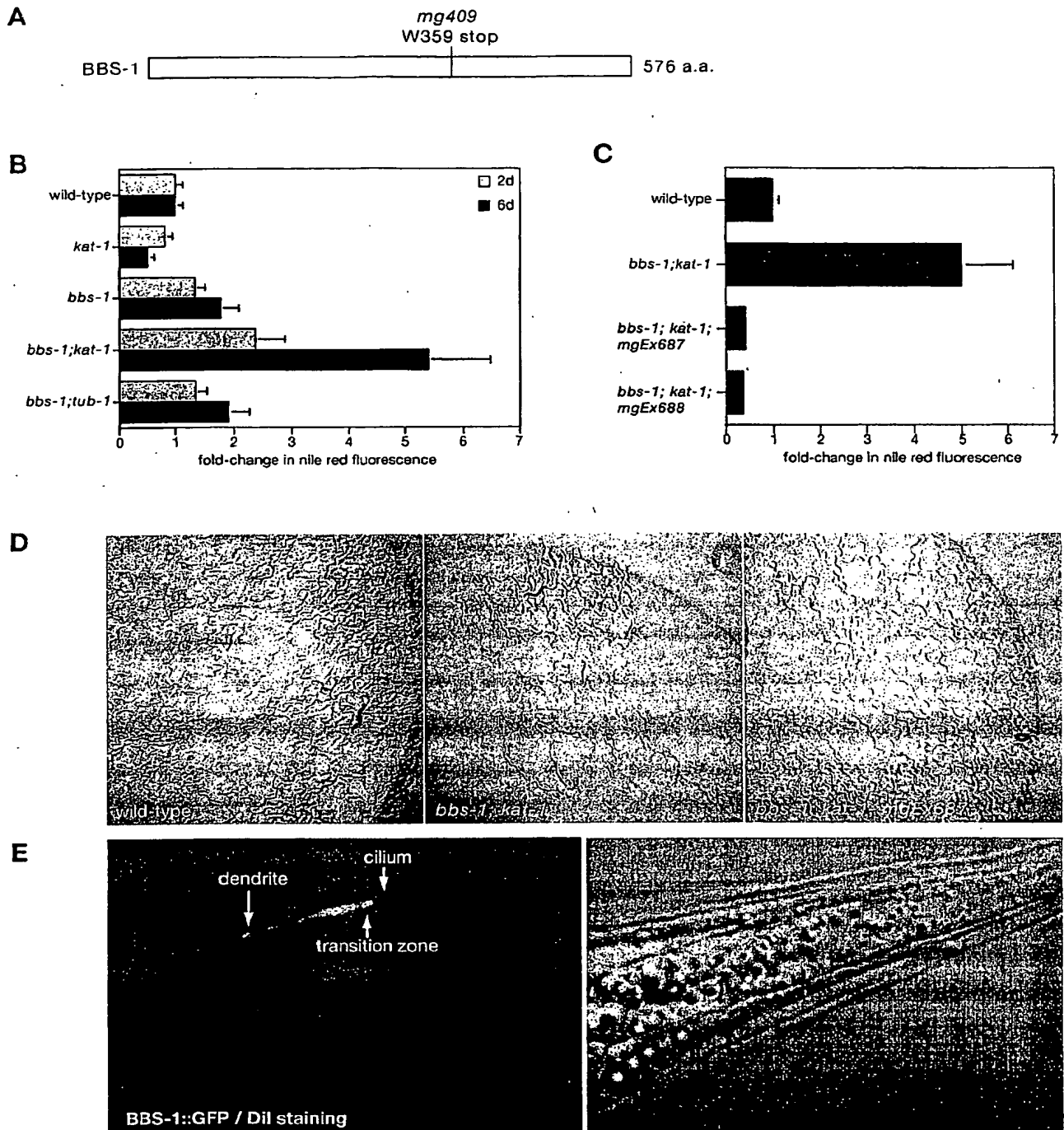


Figure 13A-13E



Alignment of BBS-1 and its human orthologue

Figure 13F

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BBS1_human 1:MAAASSSDSDACCAESNEANSKMLDAHYDPMANHTFSACGLNDHGDGSKLVGDLPGGGQPPKLV: 70
BBS-1_worm 1:.....MAKPVNVNQSKMTVPVLKBCCELYCPSTCVAFGPTLSDNDSKLTLYHGCHRGVMMKLV: 59

BBS1_human 71:LKGPLVMTESPFPALPAATAETLMQHEPRTPAFAASGPCYVYKNIIDPYKESIPOLPPNPLEQDIIN:140
BBS-1_worm 60:FQQLFQIISSESLADMTALVHEINPLSS..IPSLAVAAQPSIILYKNIIDPYKESIPOLPPNPLEQDIIN:127

BBS1_human 141:QAKEDRLDPLTLKEMLESRETAEEPLSIQSLRFLQLKLSMEMAFVNOHKSNSIKROTVITVTTLKKNL:210
BBS-1_worm 128:AVVNKKLNGDTLLTVLKRVEDDYAFSKLTPIISQTYLRADKETQVVVEHYGTRKANSATITCDAKLTG..:195

BBS1_human 211:ADEDAVSCLVGTENKELVYIDPEFTTAKMSHPVPELEVSGQFVAFRLAACRNGNLYILRDSDK:280
BBS-1_worm 196:STARPDLVIGTEHCEIFLIDSOAFETIETKIGSVPNVLCAYGTVDYRLFVQTRASLDFCMKRGEA:265

BBS1_human 281:HPKYCIELSAQPVGDPRVHKVLYVGSQDSIHGFPHKGGKLMVOMPALITVNLLEQHSRGLQAVMAGL:350
BBS-1_worm 266:DYQPIVISQSMITSMVLVKKELVYTVENTLIHFASFEGKKMIVKCPSKIKMTEPFYPLKQLAAVEAVF:335

BBS1_human 351:ANGEVRTYRDKALLNVHTPDAYRSYCFGRYGRDNTLTNTTGGGGLTKLKRFAVFEVGGSEVGPDA:420
BBS-1_worm 336:DK.EIRLVNEHYLDITYQYKPLAVWKKYCGYGRDSTLVVAFKDGSLAQLQTFRRKANFDTKLDYNQVQA:404
      stop (mg409)

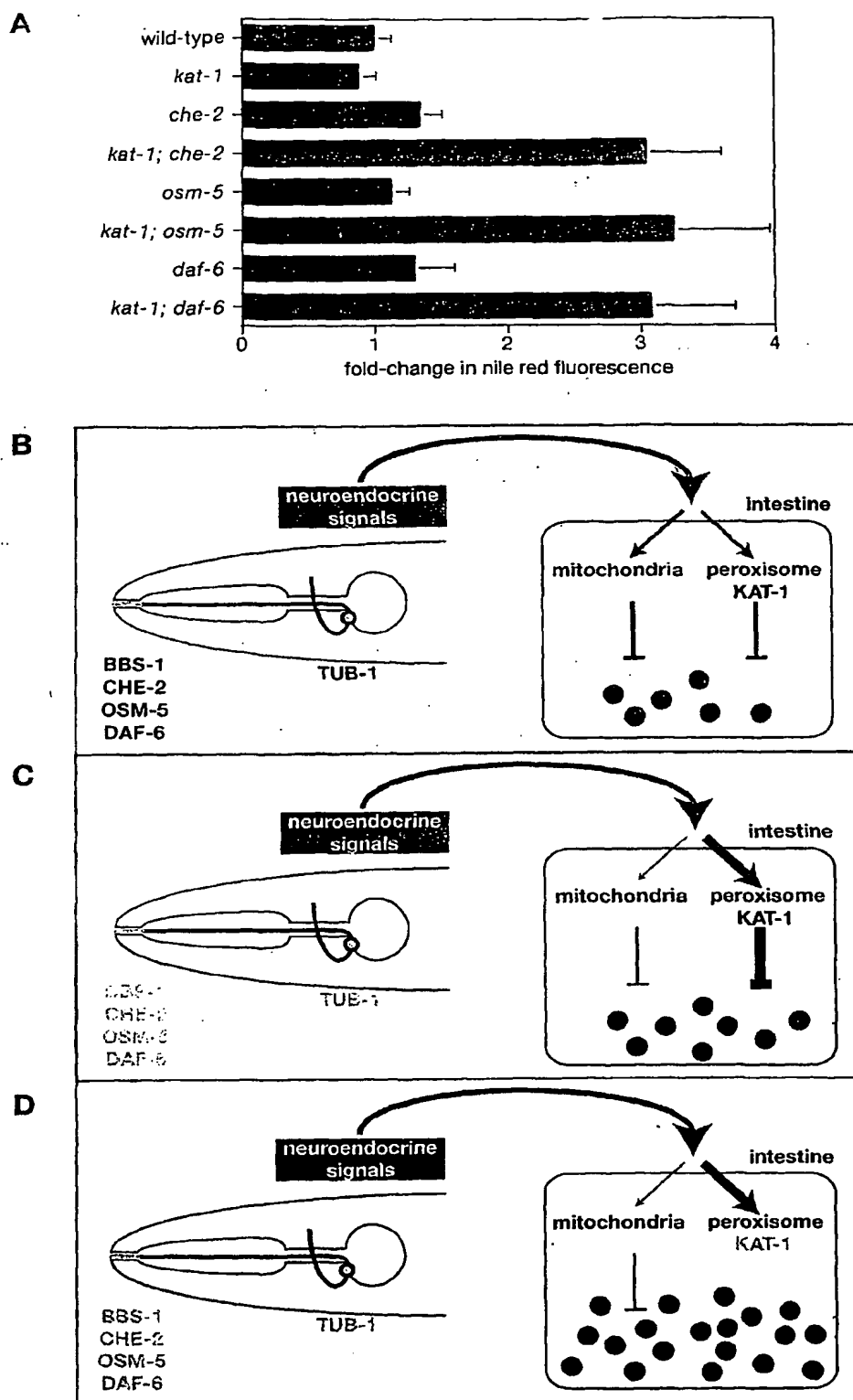
BBS1_human 421:QAWKLVNVPKRTPRKVDQTLREKAGTAMHRAQOTDILLRLRAAYTQALSSLSPLSTTAREPKTHA:490
BBS-1_worm 405:HALKLTQIPKKTKEVDLTQREVQDGNRIHVVYOKNLEQYKRLAASYELTSSASATVSTTVLPVEISV:474

BBS1_human 491:VYQGLGPTFKITLHLQNSTTRPVGLVCFYNEALYSLPRAFFKVPTEVPGLNYPLETFVESLS.NKG:559
BBS-1_worm 475:DHGEGPTFRMTLHLSSSKQN.LYDMHLSISDPELYDFDTPLIPVHLASGQSYSTTLVYCKDPEKA:543

BBS1_human 560:ISDIIRKVLVIRRGQSAPLIESAHVNMPSGSEGLAAA:593
BBS-1_worm 544:ANCDVYKALLVHAKRATPDLVLAIVTKMPFSEFPLD.:576

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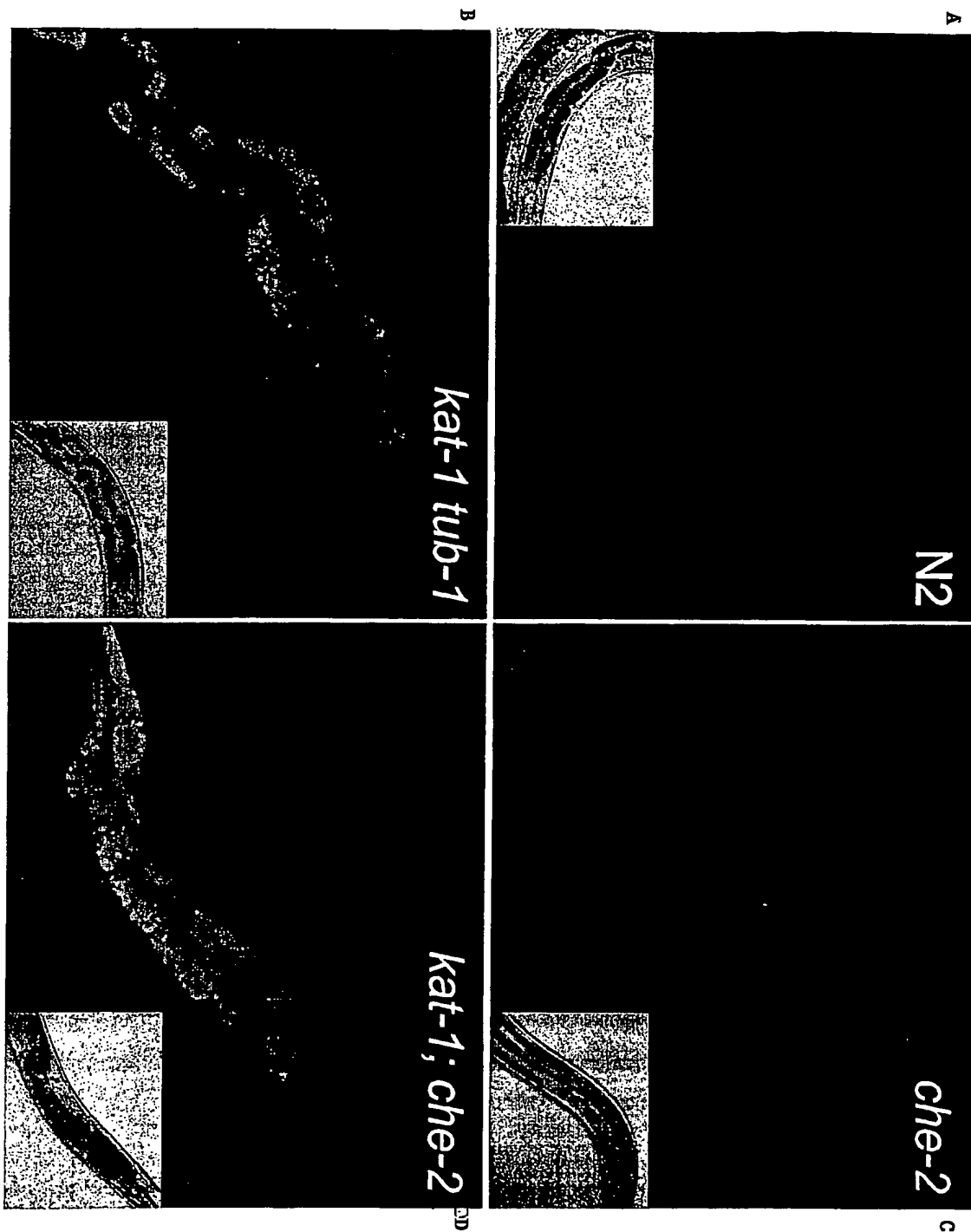

Figure 14A-14D



Synergistic increase in lipid accumulation in *kat-1*; *che-2*

6-day old adult; 20°C

Figure 15A-15D



Molecular lesion of *egl-4(mg410)* in *mut17.3*

LG IV -15.05

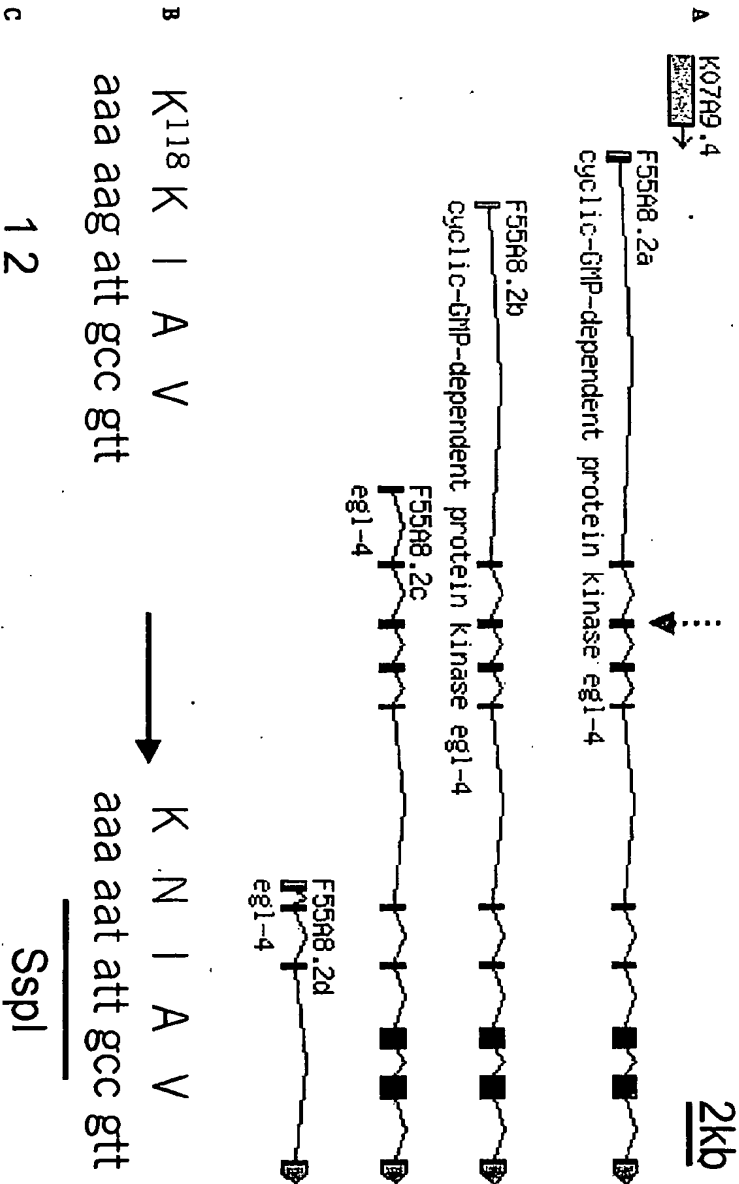
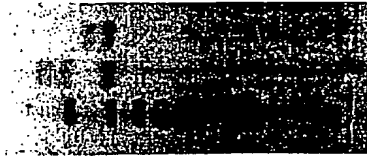
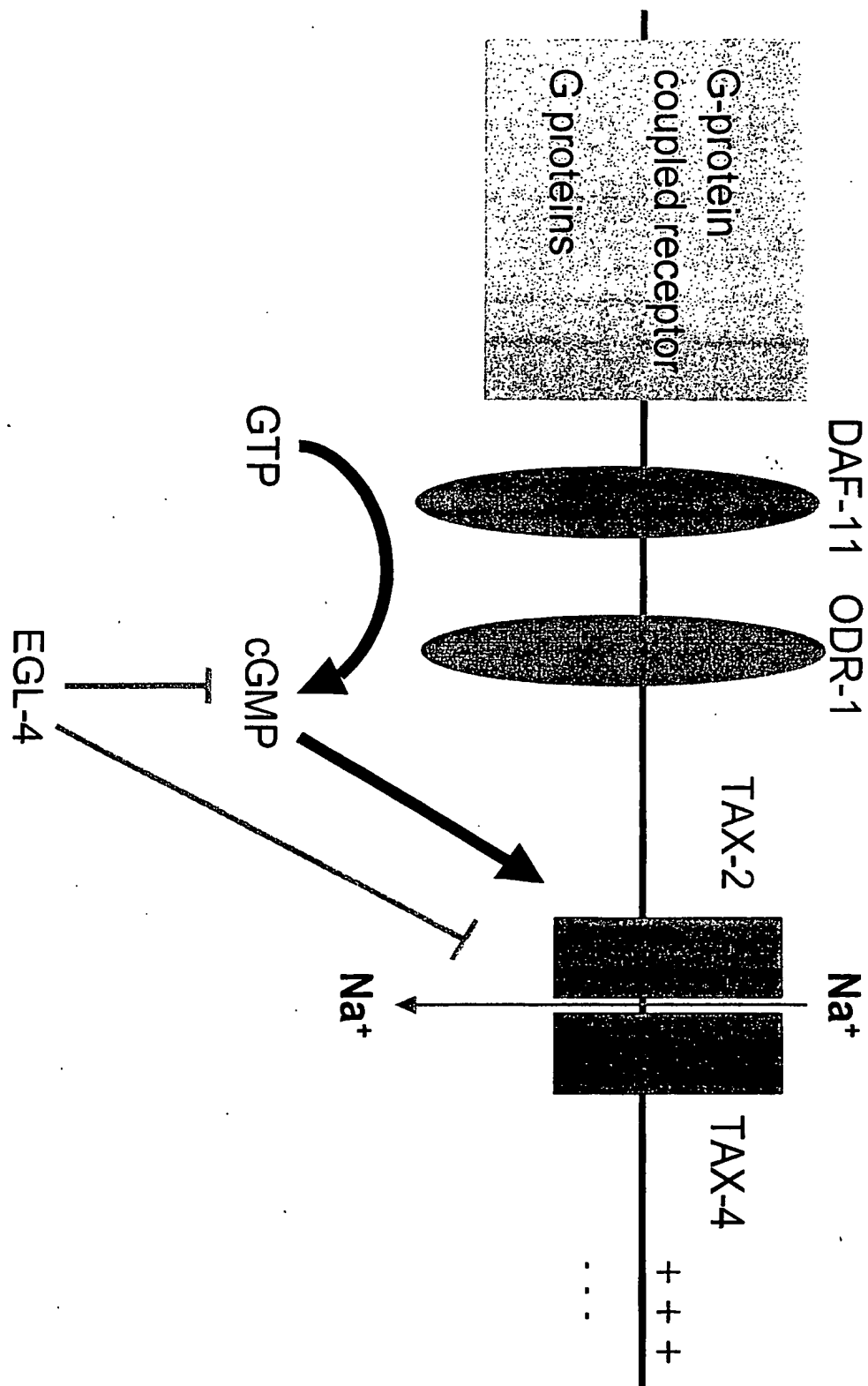


Figure 16A-16C



SspI digest
1. wt
2. *mg410*

Figure 18



Alignment of EGL-4 and its human orthologue

PCT/US2004/019186

Figure 19

CGK1-beta 1:.....MGL.....LRLDLYALGCEGLELRQDAIWDLEHLEFDOKDELQKTONELDK: 48
egl-4b 1:MKQOPRIYVQVGVTRTFEAHELQKLEPPQLEFAHSRKDAQDQDQOQTYEGHIKRSLEEGEYTTQRECDK: 70

CGK1-beta 49:YRSVIRPATQQAOK.....QSASTLQ.....GEPRTKROTSABPTAEITQDLSHVTP: 97
egl-4b 71:LRSVLEOKAOSASPPGGQPPSPSPRTDQLQNDLQOKAVLPADGVQAKKTLAWSAEPNENK...PALDQ:137

CGK1-beta 98:FVPSKSPQSKDPIKEAATDNDPKNKLELSQIQEIVDQWYFVEYGRKDSCEIKEGVGSIVVYVNDGKVEYTK:167
egl-4b 138:HYNKTVGAKQMRDAVQKNDPELKOLAKEQIIEIVNCWYBPARAGQWYIQEGEPDRERVAEGELQVEN:207

CGK1-beta 168:EGVKLTCTMGPGKVFGEALILYNCTRTAVKTLVNVKINAIDRQCQETIMRIGETIHDREYMEFLKSVPTF:237
egl-4b 208:EGALLGKWRAGTVMGELAILYNCTRTASVQALTDVOLNVIDRSVEQMTQRLGEMRHSLQIMNELTKVSI:277

CGK1-beta 238:QSPPEEILSKLADVHEETHYENGEEYIIRQGARQDTFELLISKGTNVNTRSDSPSKDVFLLRLGKGDVEGE:307
egl-4b 278:QNTSEDRISKMDADVMDQDYKDGCHYIIRQGEKGDAPFVINSQVKTQIQIEGETEPRELRVINOGDVEGE:347

CGK1-beta 308:KATOGEDVRTANVIAAEAVTCLVDRDSFKHLIGGLDDYSNKAYEDAFAKAKYEAFAF.....:366
egl-4b 348:KALLGEEVRTANETIAQAPGVFVLTIDRESFGKLIGDLESFKKDYGDKEKRLAOVVRPEPPSPVKIVDDFRE:416

CGK1-beta 366:..FANIKLSDFNIETDVGVGFGFVELVOLKSEESKTFAMKILKKRHIVDTRQOEHIRSEKQIMOGAHSDF:435
egl-4b 417:EEAQVTLKNVKRRAITLVGGGFGFVELVQWNGDKAKTFAKKA LKKKHIVDTRQOEHIIPAEKNIMMETSIDN:486

CGK1-beta 436:LYRLEYRTEKDSKYLVMMEACLGELMTILRDRGSFEDSTRTFYTACVVEAFAYIHSKGIHYRDLKPENL:505
egl-4b 487:LVKLYKKTERDOKKEVYMLTEVCLGGELMTILRDRGHEDDYIARFYVACVVEGLELYLHRKNIVYRDLKPENC:556

CGK1-beta 506:ILDHRGYAKLVDEGFAKKLGFGKKTWTFCGTPPEYVAPETILNKGHDISADYWSLGILYVETGSPPSG:575
egl-4b 557:ILLANTGYLKLVDGFAKKKIASGSKTWTFCGTPPEYVSPETILNKGHDAQADYMAALGIYECBELMLGRPPFOA:626

CGK1-beta 576:PDNPKTYNELLRGIDMEFPKKLAKNAANTLKKLCRDNPSERLNLKNGVKDIOKHKWFEGFNWGLRK:644
egl-4b 627:SDNPKTYNELLRGIDMEFPKKLAKNAANTLKKLCRDNPSERLNLKNGVKDIOKHKWFEGFNWGLRK:696

CGK1-beta 645:GTLTDPDILBSVASPTDTSNEDSFPEDNDPEPPDUNSGWDIDF:686
egl-4b 697:RTDKPPILEKVSNPADVNTEDNYPDPNDVPPDEFGWDEGF:737

← N (mg410)

Figure 20

egl-4(lf) suppresses lipid accumulation of *kat-1 tub-1* mutant animals

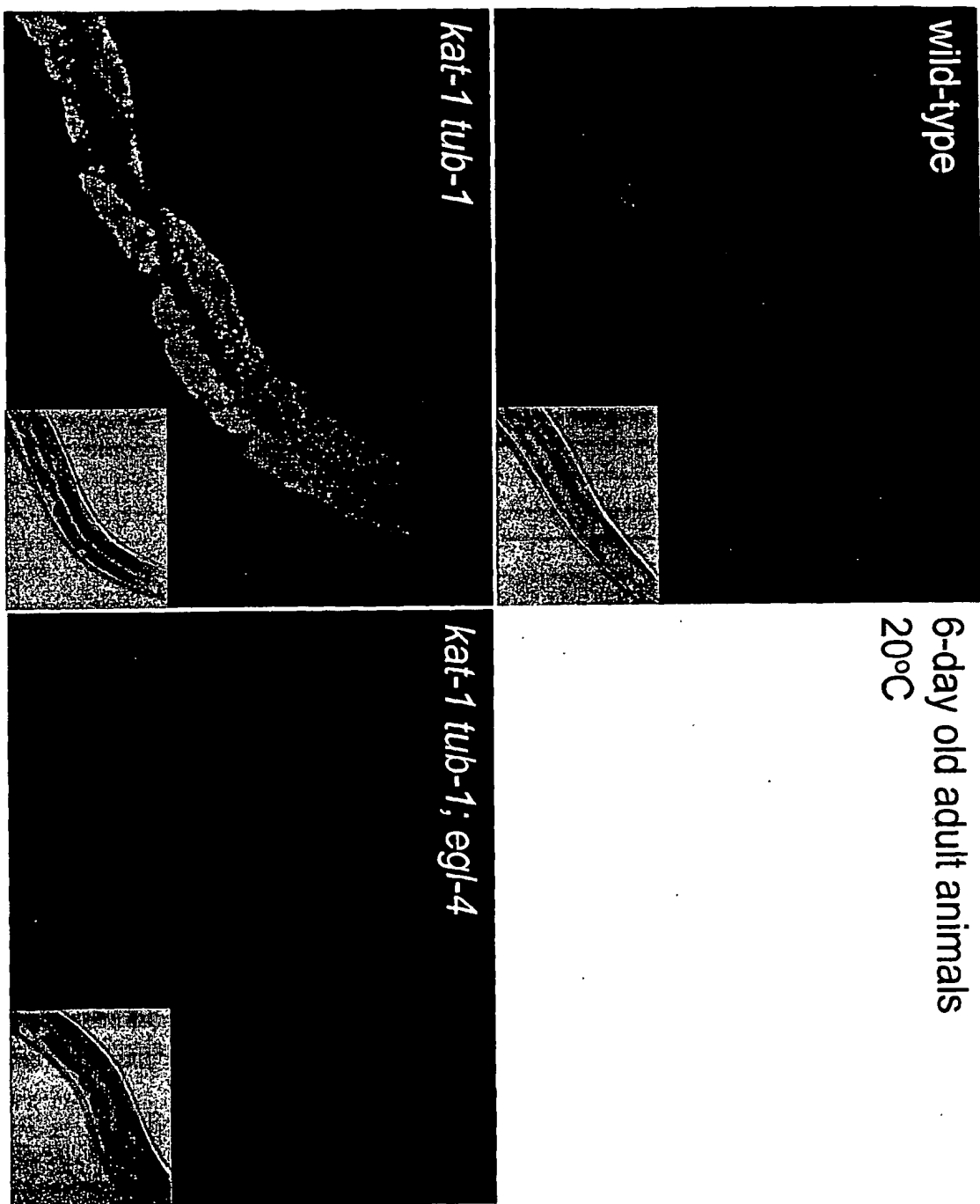


Figure 21

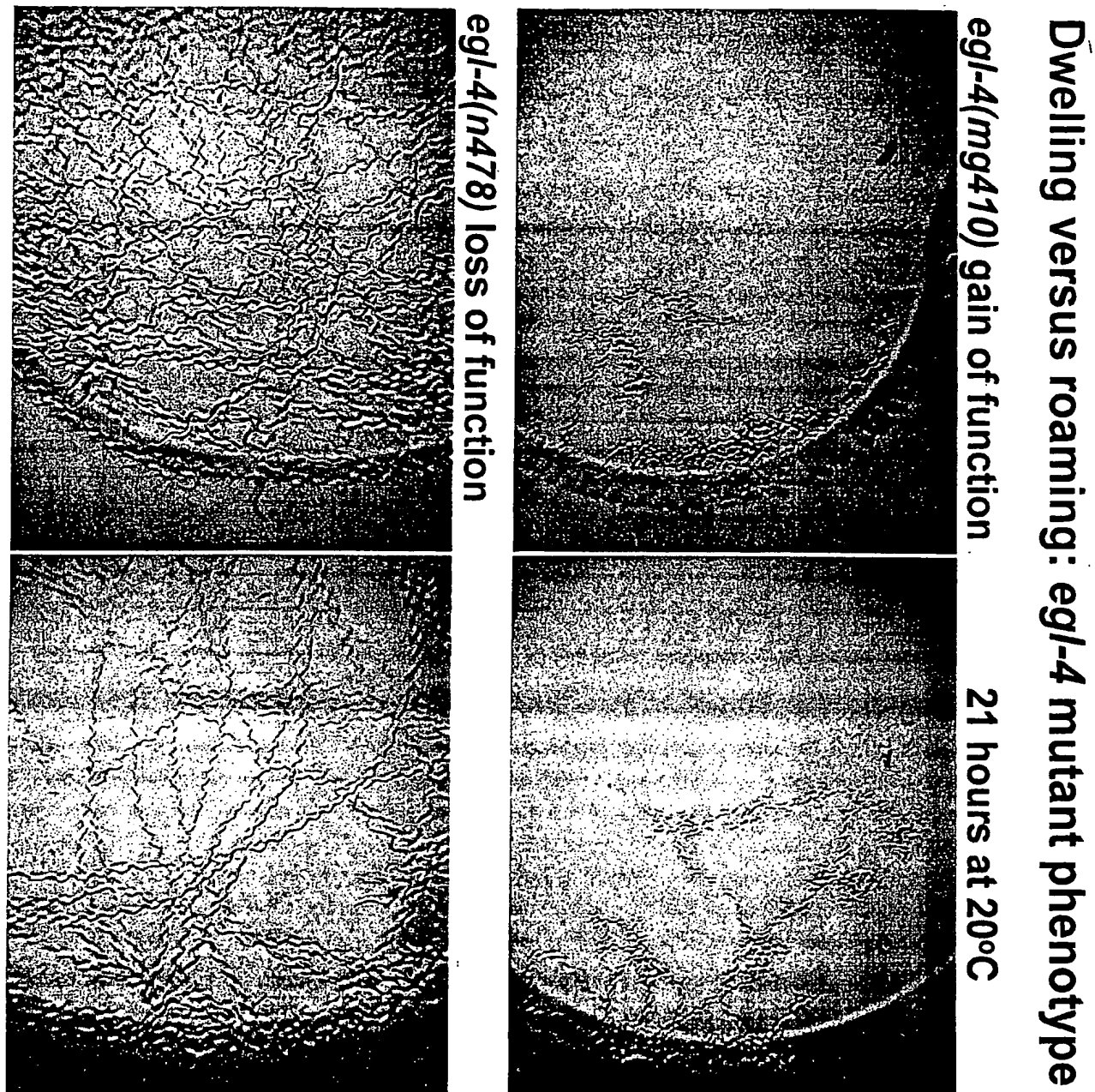


Figure 22

kat-1 enhances lipid accumulation of *tax-2* and *tax-4* mutant animals

TAX-2, TAX-4: cGMP gated ion channel

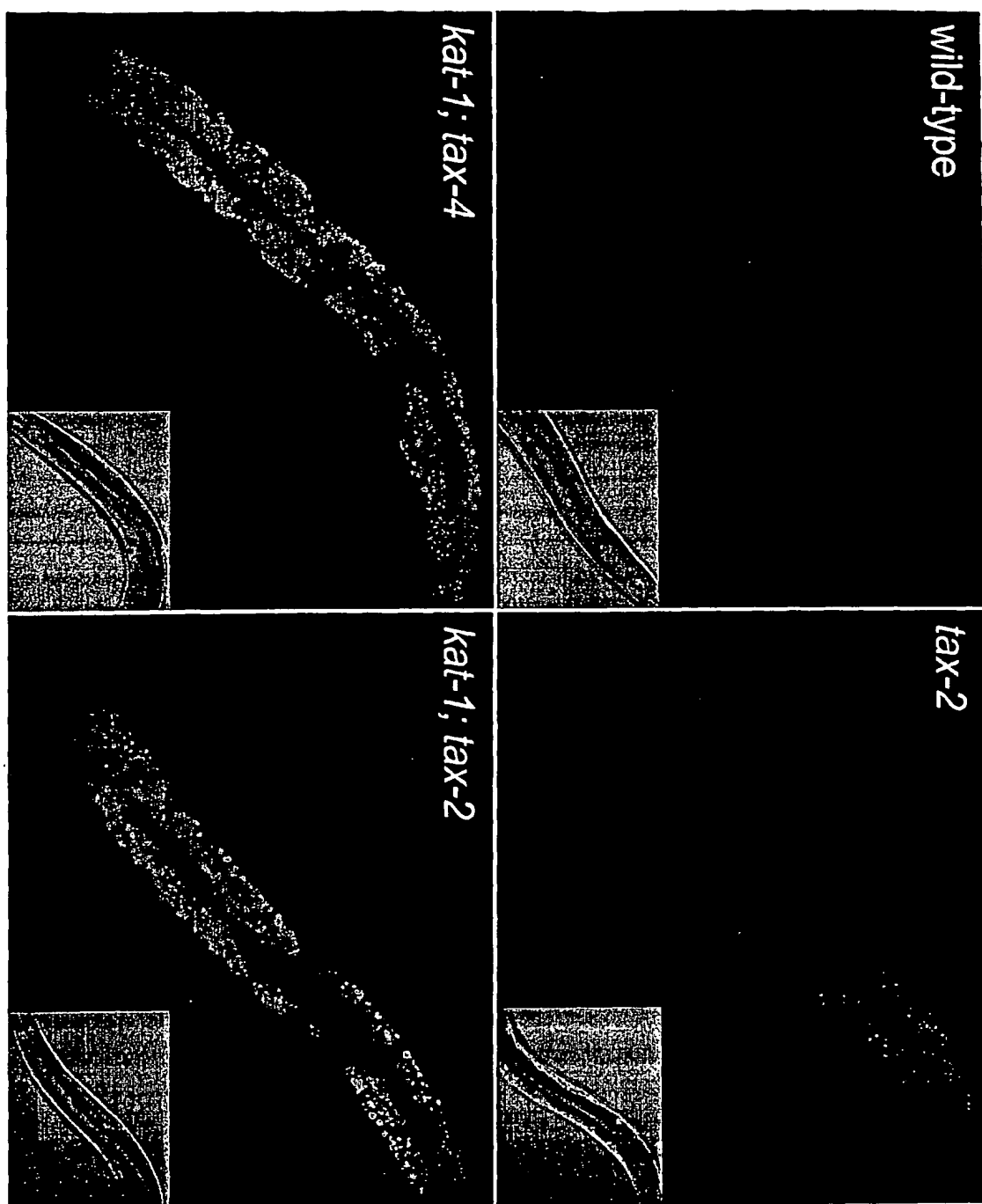
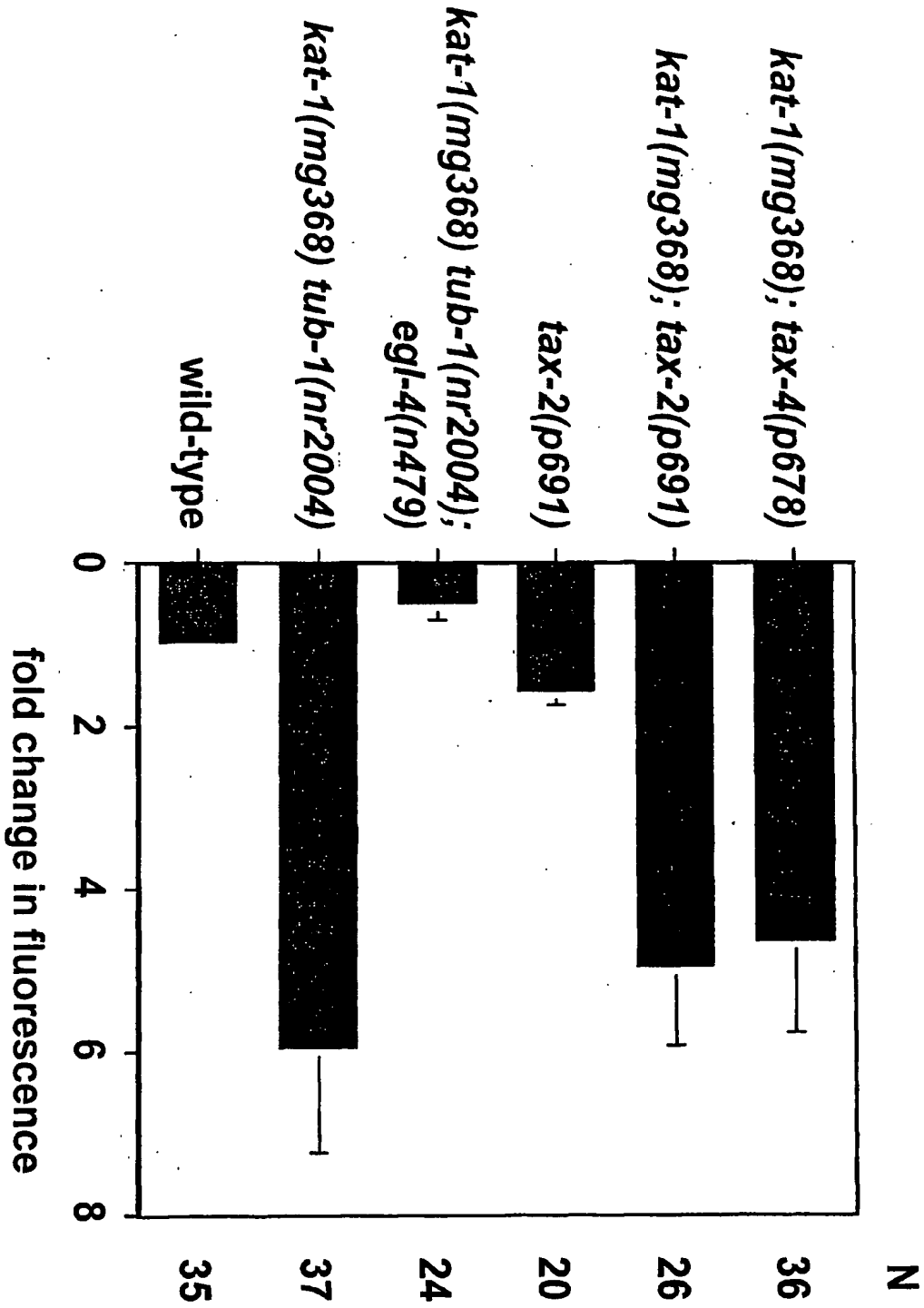


Figure 23

Nile red fluorescence of 6-day old adult animals



C1-BODIPY- C12 staining of 6 day old adult

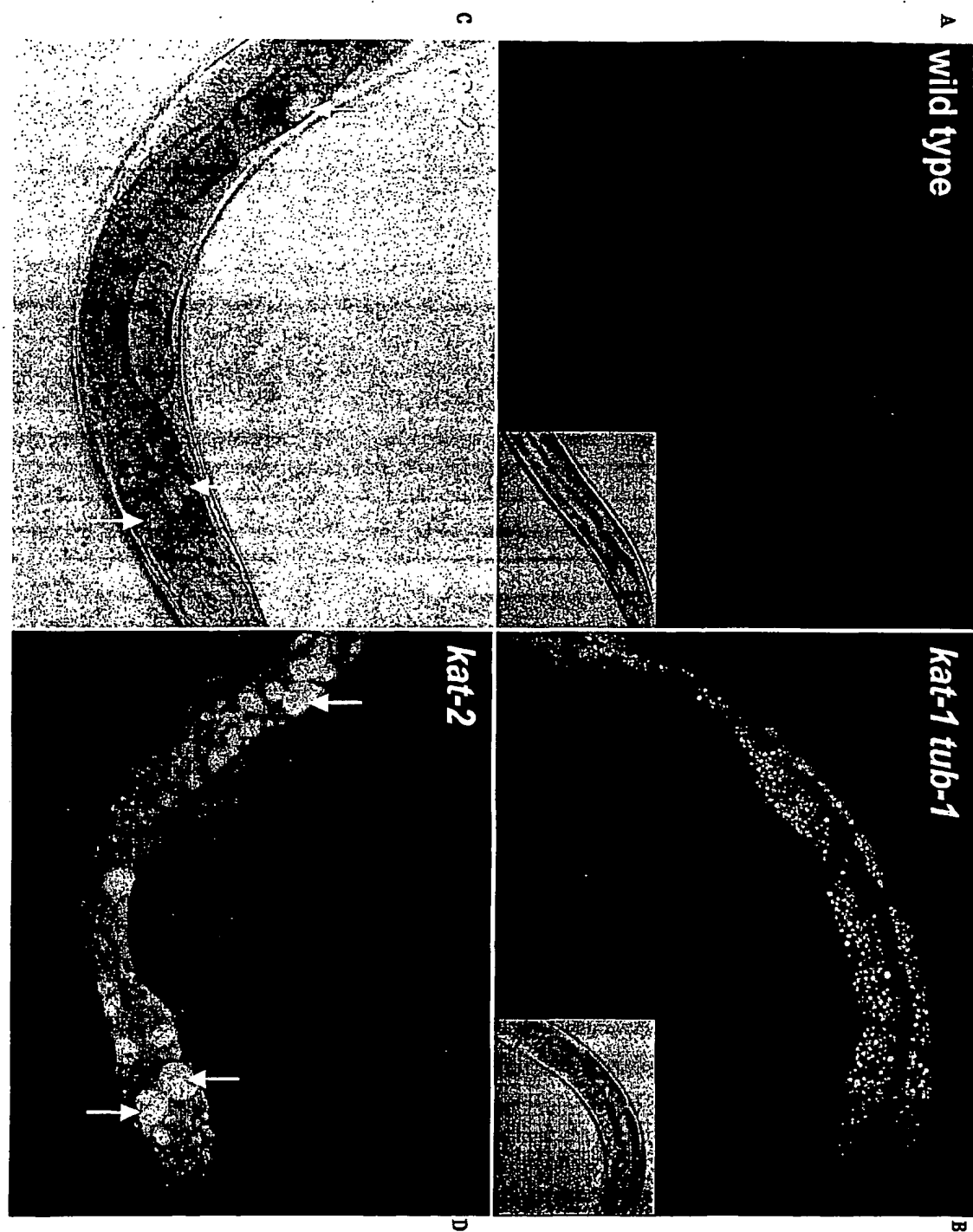


Figure 25A-25D

Nile red staining of 6 day old adult

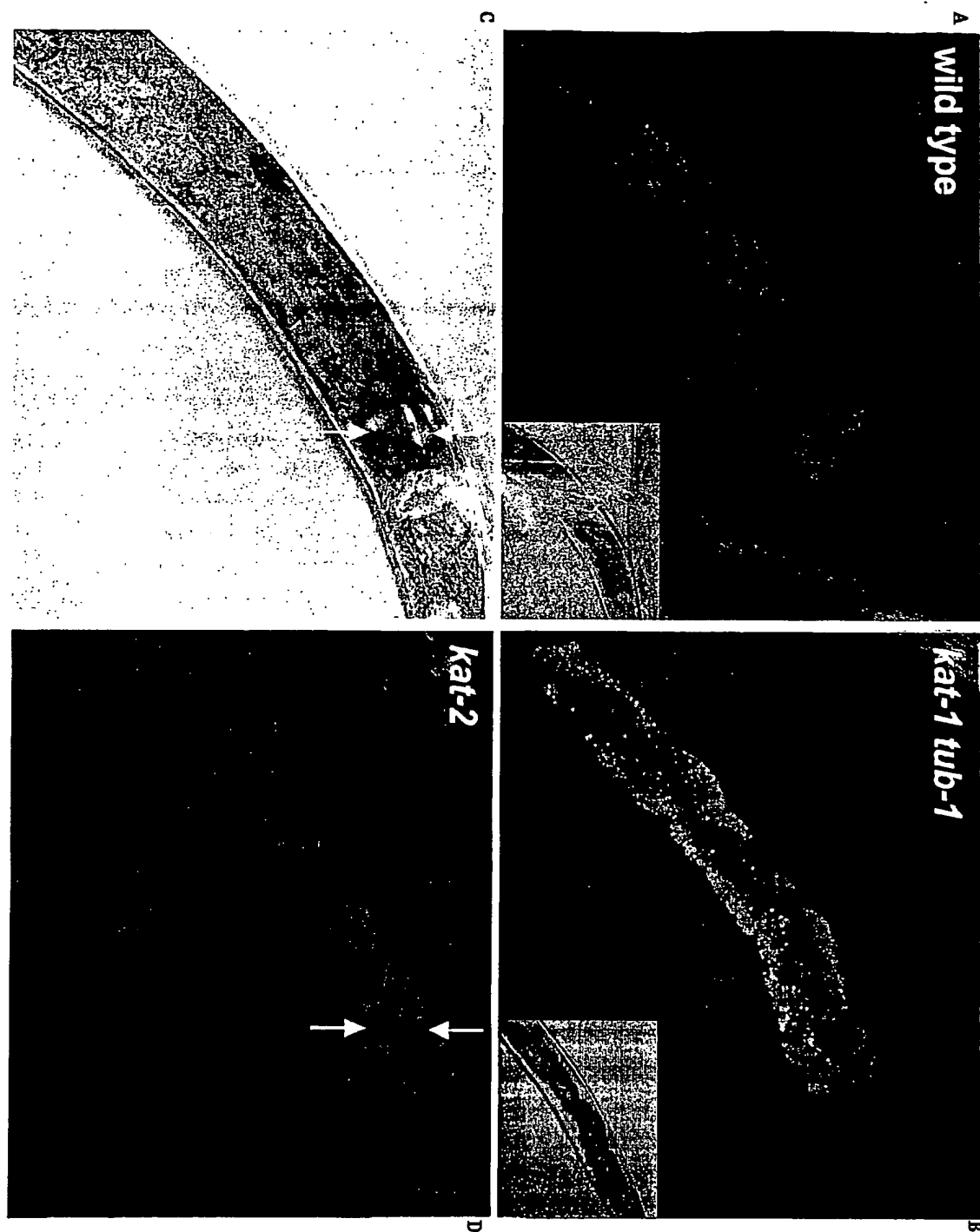


Figure 26A-26D

Peroxisomal GFP

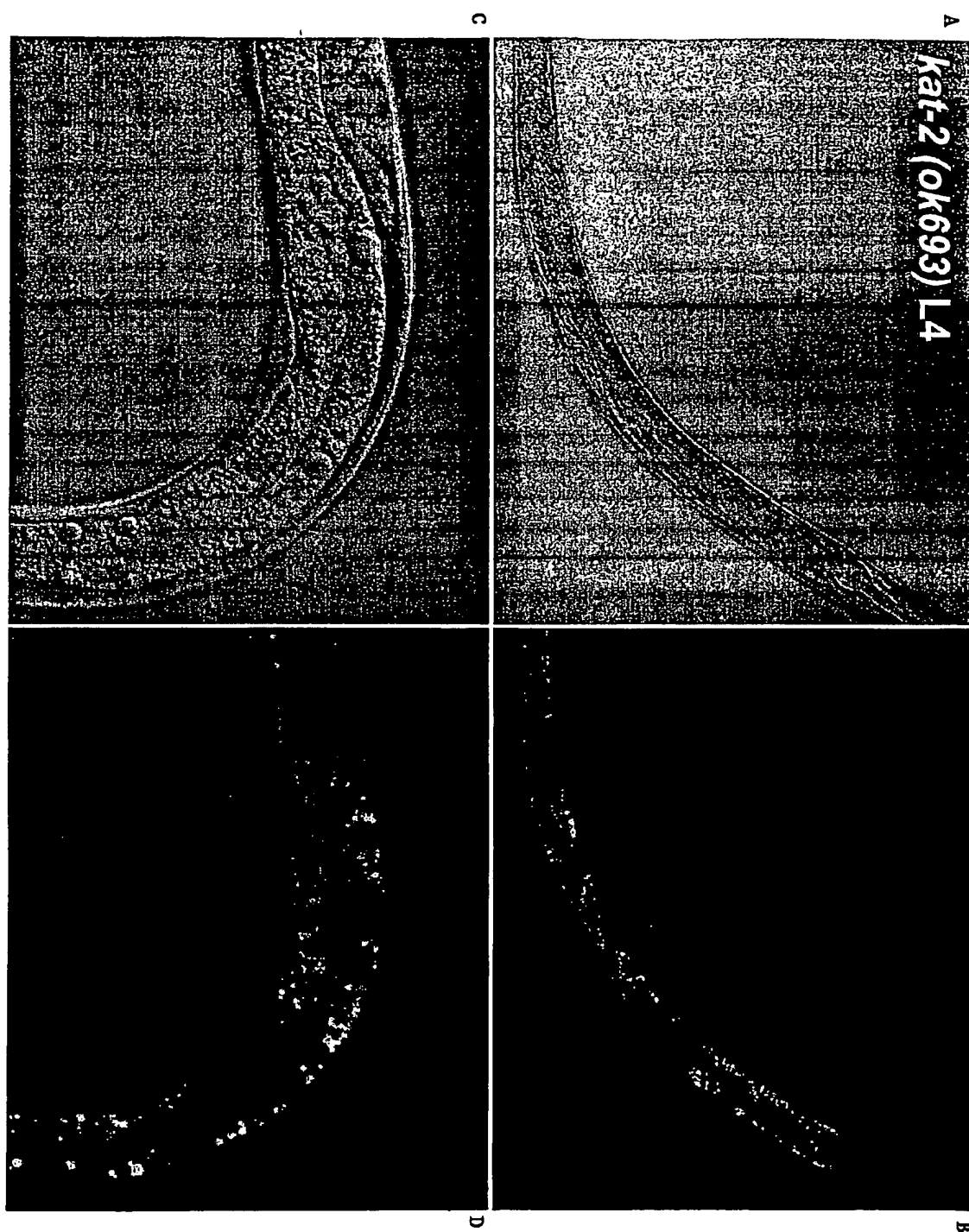


Figure 27

